BATHROOM UNIT AND BATHROOM UNIT CONSTRUCTION METHOD

TECHNICAL FIELD

The present invention relates to a bathroom unit and a bathroom unit construction method.

BACKGROUND ART

A bathroom unit including a wall material and a ceiling material arranged without any gap from the top surface of the wall material has been heretofore known (for example, refer to Patent Document 1).

Further, a bathroom unit including a wall material attached transversely to a pair of columns extending in a vertical direction has also been known.

Patent Document 1:Japanese Unexamined Utility Model Registration Application, Publication No. H1-11883

DISCLOSURE OF THE INVENTION

Problems to be Solved by the Invention

In the case of the bathroom unit according to Patent Document 1, since the ceiling material is arranged without any gap from the top surface of wall material, an operation of attachment or detachment of the wall material is difficult prior to detachment of the ceiling material. Further, in the case of the bathroom unit including the wall material attached transversely to the pair of columns extending in the vertical direction, since the wall material is attached to the columns

extending in the vertical direction, flexibility in terms of movement in a horizontal direction may not be sufficient. Therefore, a bathroom unit, in which a wall material can be easily attached or detached, and the wall material has a high degree-of-freedom of movement, has been desired.

The present invention aims to provide a bathroom unit and a bathroom unit construction method, in which a wall material has a high degree-of-freedom of movement, and the wall material can be easily attached or detached.

Means for Solving the Problems

The present invention relates to a bathroom unit that includes: a floor material; a frame body including a plurality of frame members standing on a top surface side on a periphery of the floor material; a ceiling material attached to the frame body; and an inner wall material attached to an inside of the frame body, between the floor material and the ceiling material, the inner wall material being attachable and detachable in relation to the frame body, in which an upper end of the inner wall material is arranged so as to be spaced apart from the ceiling material.

It is preferable that the bathroom unit further includes an inner wall material gap filling member arranged so as to fill a gap between the inner wall material and the ceiling material.

It is preferable that the inner wall material includes, on a back side thereof, an inner wall material suspension member suspended from the frame body.

It is preferable that the inner wall material suspension member is provided to the upper end of the inner wall material.

It is preferable that the bathroom unit further includes an outer wall material that is attached to an outside of the frame body, and is attachable and detachable in relation to the frame body.

It is preferable that the bathroom unit further includes an inner wall material restraining portion that restrains a lower end of the inner wall material from moving in a direction approaching the frame member and in a direction separating from the frame member.

The present invention relates to a construction method for a bathroom unit including: a floor material; a ceiling material attached to the frame body; and an inner wall material attached to an inside of the frame body, between the floor material and the ceiling material, the inner wall material being attachable and detachable in relation to the frame body, the method including the steps of: attaching the inner wall material to the frame body, such that a predetermined gap is formed between the ceiling material and the inner wall material; and attaching an inner wall material gap filling member between the inner wall material and the ceiling material, so as to fill the gap between the inner wall material and the ceiling material.

Effects of the Invention

The present invention can provide a bathroom unit and a bathroom unit construction method, in which a wall material

has a high degree-of-freedom of movement, and the wall material can be easily attached or detached.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view illustrating a bathroom unit 1 according to a first embodiment of the present invention;

FIG. 2 is a side view illustrating the bathroom unit 1 according to the first embodiment of the present invention, in a state where an inner wall material 16 and an outer wall material 18 have been removed;

FIG. 3 is a diagram illustrating a method for attaching the inner wall material 16 in the bathroom unit 1 according to the first embodiment;

FIG. 4 is a diagram illustrating a method for attaching the inner wall material 16 in the bathroom unit 1 according to the first embodiment;

FIG. 5 is a diagram illustrating a method for attaching the outer wall material 18 in the bathroom unit 1 according to the first embodiment;

FIG. 6 is a diagram illustrating a method for detaching the inner wall material 16 in the bathroom unit 1 according to the first embodiment;

FIG. 7 is a diagram illustrating a method for detaching the outer wall material 18 in the bathroom unit 1 according to the first embodiment;

FIG. 8 is a side view illustrating a bathroom unit 1A according to a second embodiment of the present invention;

FIG. 9 is a side view illustrating a bathroom unit 1B according to a third embodiment of the present invention; and

FIG. 10 is a side view illustrating a bathroom unit 1C according to a fourth embodiment of the present invention.

PREFERRED MODE FOR CARRYING OUT THE INVENTION

Each preferred embodiment of a bathroom unit of the present invention is hereinafter described with reference to the attached drawings. FIG. 1 is a side view illustrating a bathroom unit 1 according to a first embodiment of the present invention. FIG. 2 is a side view illustrating the bathroom unit 1 according to the first embodiment of the present invention, in a state where an inner wall material 16 and an outer wall material 18 have been removed.

The configuration of the walls of the bathroom unit 1 is primarily described. Note that the other configurations such as a bathtub used in the bathroom unit 1 are similar to typical configurations; therefore, descriptions thereof are omitted herein.

As illustrated in FIGS. 1 and 2, the bathroom unit 1 of the first embodiment includes a floor material 11, a frame body 12 arranged on the top surface of the floor material 11, a ceiling material 13 attached to an upper portion of the frame body 12, the inner wall material 16 attached to the inside of the frame body 12, an inner wall material side molding 17 as an inner wall material gap filling member, the outer wall material 18 attached to the outside of the frame

body 12, and an outer wall material side molding 19 as an outer wall material gap filling member. Note that the inside of the frame body 12 refers to a space surrounded by the floor material 11 and the frame body 12, inside of the frame body 12.

The floor material 11 is formed into the shape of a square plate having a predetermined thickness. The floor material 11 is arranged so as to extend in the horizontal direction. The floor material 11 is arranged so as to be spaced apart at a predetermined distance from a concrete slab 21, on the installation site. A level raising member 20 is attached to the under surface of the floor material 11. The floor material 11 is raised from the concrete slab 21 by way of the level raising member 20, on the installation site.

The frame body 12 is constituted of a frame, an outer shape of which is a rectangular parallelepiped as a whole. The frame body 12 includes: four longitudinal frames (frame members) 121 standing at each corner of the floor material 11, on the top surface side on the periphery of the floor material 11; four transverse frames 122 arranged so as to connect adjacent frames of the four longitudinal frames 121, at the upper end of the longitudinal frame 121; and a plurality of bar members 15.

The longitudinal frame 121 and the transverse frame 122 are each structured into a pipe having a quadrate cross section. The floor material 11 and the four longitudinal frames 121 are connected via connection members (not illustrated) or by welding. The four longitudinal frames and

the four transverse frames are connected via connection members (not illustrated) or by welding.

The plurality of bar members 15 extend in the horizontal direction so as to connect the adjacent longitudinal frames 121 between the ceiling material 13 and the floor material 11. The plurality of bar members 15 are each structured into a pipe having a quadrate cross section. Both ends of the bar member 15 are connected to the adjacent longitudinal frames 121. The plurality of bar members 15 are arranged at a distance in the vertical direction. Attachment holes 151 penetrate the bar members 15 in the horizontal direction; and inner wall material hook members 163 (inner wall material suspension members) of the inner wall material 16 and outer wall material hook members 183 (outer wall material suspension members) of the outer wall material 18, which will be described later, are to be suspended from the attachment holes 151. The attachment hole 151 is composed of an inner wall material side attachment hole 151a that is open to the inside of the frame body 12, and an outer wall material side attachment hole 151b that is open to the outside of the frame body 12.

The ceiling material 13 constitutes the ceiling of the bathroom unit 1. The ceiling material 13 is formed into the shape of a square plate having a predetermined thickness. The ceiling material 13 is arranged so as to extend in the horizontal direction. The ceiling material 13 is attached to the inner side surfaces of the four longitudinal frames 121 by

way of connecting plates 142 and screw members 141. The space surrounded by the floor material 11, the ceiling material 13 and the four longitudinal frames 121 constitutes a bathroom 10 of the bathroom unit 1.

The inner wall material 16 is attached to the inside of the frame body 12 between the floor material 11 and the ceiling material 13. The inner wall material 16 is formed into the shape of a plate, and extends in the vertical direction. The upper end of the inner wall material 16 is arranged below the ceiling material 13, so as to be spaced apart from the ceiling material 13. The inner wall material 16 constitutes an inner wall of the bathroom unit 1. The inner wall material 16 is detachably attached to the bar members 15, thereby being attachable and detachable in relation to the frame body 12.

The inner wall material 16 includes a tile material 161 constituting the front surface of the inner wall material 16, and a backing material 162 to which the tile material 161 is attached. Further, the inner wall material 16 includes the plurality of inner wall material hook members 163 in the shape of a hook. The uppermost inner wall material hook member 163 is provided to the upper end of the inner wall material 16. The inner wall material hook members 163 are suspended from the bar members 15.

The inner wall material hook members 163 are provided to the back side of the inner wall material 16. The inner wall material hook members 163 horizontally extend from the back surface of the backing material 162 for a predetermined length,

and bend and extend downwards from the position extending for the predetermined length. The plurality of inner wall material hook members 163 are arranged so as to be spaced apart in the vertical direction, and arranged so as to be spaced apart in the horizontal direction.

When the inner wall material 16 is attached to the frame body 12, the inner wall material hook members 163 are inserted into the inner wall material side attachment holes 151a of the bar members 15, respectively, and the inner wall material 16 is subsequently moved downwards, whereby the inner wall material hook members 163 are caught on lower thickness portions in the pipes of the inner wall material side attachment holes 151a of the bar members 15, respectively. As a result, the inner wall material 16 is suspended from the bar members 15.

When the inner wall material 16 is detached from the frame body 12, the inner wall material 16 is moved upwards, and the inner wall material hook members 163 are subsequently pulled out from the inner wall material side attachment holes 151a, whereby the inner wall material hook members 163 are detached from the lower thick portions in the pipes of the inner wall material side attachment holes 151a, respectively.

A positioning recess (inner wall material restraining portion) 164, which hollows upwards from the lower end side of the backing material 162, is formed in the lower end of the backing material 162 of the inner wall material 16. The positioning recess 164 can be locked to an inner wall material

positioning protrusion (inner wall material restraining portion) 111 on the floor material 11. The positioning recess 164 is locked to the inner wall material positioning protrusion 111, whereby the lower end of the inner wall material 16 is restrained from moving in a direction approaching the longitudinal frame 121 and in a direction separating from the longitudinal frame 121.

The inner wall material side molding 17 is arranged so as to fill a gap between the inner wall material 16 and the ceiling material 13. The inner wall material side molding 17 fits the gap between the inner wall material 16 and the ceiling material 13, in the inside of the frame body 12. The inner wall material side molding 17 is arranged along the inner surface of the longitudinal frame 121, extending in the entire circumferential direction of the frame body 12. The inner wall material side molding 17 is a member attached for the purpose of enhancing ornamental design, and is formed of, for example, a resin member.

The outer wall material 18 is attached to the outside of the frame body 12. The outer wall material 18 is formed into the shape of a plate, and extends in the vertical direction. The upper end of the outer wall material 18 is arranged below a ceiling material 31 of a room 30 adjacent to the bathroom unit 1, so as to be spaced apart from the ceiling material 31 of the room 30 adjacent to the bathroom unit 1. The ceiling material 31 of the room 30 adjacent to the bathroom unit 1 is attached (fixed) to the structure of the house, via a

connecting plate 322 by way of a screw member 321, for example, at the end opposite to the bathroom unit 1. The outer wall material 18 constitutes an inner wall of the room 30 adjacent to the bathroom unit 1. From a different perspective, the inner wall of the room 30 adjacent to the bathroom unit 1 can also be regarded as the outer wall constituted of the outer wall material 18 of the bathroom unit 1. The outer wall material 18 is detachably attached to the bar members 15, thereby being attachable and detachable in relation to the frame body 12.

The outer wall material 18 includes a panel material 181 constituting the front surface of the outer wall material 18, and a backing material 182 to which the panel material 181 is attached. Further, the outer wall material 18 includes the plurality of outer wall material hook members 183 in the shape of a hook. The uppermost outer wall material hook member 183 is provided to the upper end of the outer wall material 18. The outer wall material hook members 183 are suspended from the bar members 15.

The outer wall material hook members 183 are provided to the back side of the outer wall material 18. The outer wall material hook members 183 horizontally extend from the back surface of the backing material 182 for a predetermined length, and bend and extend downwards from the position extending for the predetermined length. The plurality of outer wall material hook members 183 are arranged so as to be spaced apart in the

vertical direction, and arranged so as to be spaced apart in the horizontal direction.

When the outer wall material 18 is attached to the frame body 12, the outer wall material hook members 183 are inserted into the outer wall material side attachment holes 151b of the bar members 15, respectively, and the outer wall material 18 is subsequently moved downwards, whereby the outer wall material hook members 183 are caught on lower thickness portions in the pipes of the outer wall material side attachment holes 151b of the bar members 15, respectively. As a result, the outer wall material 18 is suspended from the bar members 15. In this manner, the outer wall material 18 is attached to the bar members 15, thereby attached to the frame body 12.

When the outer wall material 18 is detached from the frame body 12, the outer wall material 18 is moved upwards, and the outer wall material hook members 183 are subsequently pulled out from the outer wall material side attachment holes 151b, whereby the outer wall material hook members 183 are detached from the lower thickness portions in the pipes of the outer wall material side attachment holes 151b, respectively.

A positioning recess (outer wall material restraining portion) 184, which hollows from the lower end of the backing material 182, is formed in the lower end of the backing material 182 of the outer wall material 18. The positioning recess 184 can be locked to an outer wall material positioning protrusion (outer wall material restraining portion) 112 on

the floor material 11. The positioning recess 184 is locked to the outer wall material positioning protrusion 112, whereby the lower end of the outer wall material 18 is restrained from moving in the direction approaching the longitudinal frame 121 and in the direction separating from the longitudinal frame 121.

The outer wall material side molding 19 is arranged so as to fill a gap between the outer wall material 18 and the ceiling material 31 of the room 30 adjacent to the bathroom unit 1. The outer wall material side molding 19 fits the gap between the outer wall material 18 and the ceiling material 31 of the adjacent room 30, in the outside of the frame body 12. The wall material side molding 19 is arranged as extending in the entire circumferential direction of the room 30 adjacent to the bathroom unit 1. The outer wall material side molding 19 is a member attached for the purpose of enhancing ornamental design, and is formed of, for example, a resin member.

Next, a method for attaching the inner wall material 16 and the outer wall material 18 to the frame body 12 is described. FIGS. 3 and 4 are diagrams illustrating a method for attaching the inner wall material 16 in the bathroom unit 1 according to the first embodiment. FIG. 5 is a diagram illustrating a method for attaching the outer wall material 18 in the bathroom unit 1 according to the first embodiment.

When the inner wall material 16 is attached to the frame body 12, as illustrated in FIG. 3, the inner wall material 16

is attached to the frame body 12 such that a predetermined gap is formed between the ceiling material 13 and the inner wall material 16. For example, on a side surface of the bathroom unit 1, the inner wall material hook members 163 of the inner wall material 16 are hooked on the inner wall material side attachment holes 151a of the bar members 15, respectively; the inner wall material 16 is moved downwards; and the inner wall material 16 is suspended from the frame body 12. Since the uppermost inner wall material hook member 163 is provided to the upper end of the inner wall material 16, the upper end of the inner wall material 16 is stably fixed. In addition, as illustrated in FIG. 4, similarly, the inner wall material 16 is suspended from the frame body 12, on all four side surfaces of the bathroom unit 1. At this time, the positioning recess 164 is locked to the inner wall material positioning protrusion 111, at the lower end of the inner wall material 16. The inner wall materials 16 are attached to the frame body 12, thereby forming the inner wall of the bathroom unit 1.

Subsequently, as illustrated in FIG. 4, the ceiling material 13 is attached as spaced apart from above the upper end of the inner wall material 16. The ceiling material 13 is attached (fixed) to the inner side surfaces of the four longitudinal frames 121 by way of the connecting plates 142 and the screw members 141. As a result, the ceiling of the bathroom unit 1 is formed. Subsequently, the inner wall material side molding 17 is fitted between the inner wall material 16 and the ceiling material 13. Since the upper end

of the inner wall material 16 is stably fixed by way of the inner wall material hook members 163, the inner wall material side molding 17 is stably supported at the upper end of the inner wall material 16, and is stably fixed between the inner wall material 16 and the ceiling material 13.

When the outer wall material 18 is attached to the frame body 12, as illustrated in FIG. 5, the outer wall material 18 is attached to the frame body 12 such that a predetermined gap is formed between the ceiling material 31 of the room 30 adjacent to the bathroom unit 1 and the outer wall material 18. For example, on a side surface of the bathroom unit 1, the outer wall material hook members 183 of the outer wall material 18 are hooked on the outer wall material side attachment holes 151b of the bar members 15, respectively; the outer wall material 18 is moved downwards; and the outer wall material 18 is suspended from the frame body 12. Since the uppermost outer wall material hook member 183 is provided to the upper end of the outer wall material 18, the upper end of the outer wall material 18 is stably fixed. At this time, the positioning recess 184 is locked to the outer wall material positioning protrusion 112, at the lower end of the outer wall material 18. The outer wall materials 18 are attached to the frame body 12, thereby forming the outer wall of the bathroom unit 1, as well as forming the inner wall of the room 30 adjacent to the bathroom unit 1. Subsequently, the outer wall material side molding 19 is fitted between the outer wall material 18 and the ceiling material 31 of the room 30

adjacent to the bathroom unit 1. Since the upper end of the outer wall material 18 is stably fixed by way of the outer wall material hook members 183, the outer wall material side molding 19 is stably supported at the upper end of the outer wall material 18, and is stably fixed between the outer wall material 18 and the ceiling material 31.

Next, a method for detaching the inner wall material 16 and the outer wall material 18 from the frame body 12 is described. FIG. 6 is a diagram illustrating a method for detaching the inner wall material 16 in the bathroom unit 1 according to the first embodiment. FIG. 7 is a diagram illustrating a method for detaching the outer wall material 18 in the bathroom unit 1 according to the first embodiment.

When the inner wall material 16 is detached from the frame body 12, as illustrated in FIG. 6, the inner wall material side molding 17 arranged between the inner wall material 16 and the ceiling material 13 is detached at first. Here, the upper end of the inner wall material 16 is spaced apart from the ceiling material 13. Therefore, a clearance for moving the inner wall material 16 upwards is secured above the inner wall material 16. In addition, the clearance between the inner wall material 16 and the ceiling material 13 is utilized to move the inner wall material 16 upwards, while the inner wall material hook members 163 are pulled out from the inner wall material side attachment holes 151a, whereby the inner wall material 16 is detached from the frame body 12. Therefore, since the inner wall material 16 can be moved upwards, the

operation to detach the inner wall material 16 from the frame body 12 is easy.

When the outer wall material 18 is detached from the frame body 12, as illustrated in FIG. 7, the outer wall material side molding 19 arranged between the outer wall material 18 and the ceiling material 31 of the room 30 adjacent to the bathroom unit 1 is detached at first. Here, the upper end of the outer wall material 18 is spaced apart from the ceiling material 31. Therefore, a clearance for moving the outer wall material 18 upwards is secured above the outer wall material 18. In addition, the clearance between the outer wall material 18 and the ceiling material 31 is utilized to move the outer wall material 18 upwards, while the outer wall material hook members 183 are pulled out from the outer wall material side attachment holes 151b, whereby the outer wall material 18 is detached from the frame body 12. Therefore, since the outer wall material 18 can be moved upwards, the operation to detach the outer wall material 18 from the frame body 12 is easy.

The bathroom unit 1 of the present embodiment described above can achieve effects as described below.

The upper end of the inner wall material 16 is arranged so as to be spaced apart from the ceiling material 13. As a result, since the inner wall material 16 can be moved upwards without detaching the ceiling material 13, the inner wall material 16 has a high degree-of-freedom of movement, and the inner wall material 16 can be easily attached or detached.

Therefore, workability in terms of attaching or detaching the inner wall material 16 can be improved.

The inner wall material side molding 17 is provided so as to fill a gap between the inner wall material 16 and the ceiling material 13. Therefore, ornamental design of the gap between the inner wall material 16 and the ceiling material 13 can be enhanced.

The inner wall material 16 includes, on the back side thereof, the inner wall material hook members 163 suspended from the frame body 12. Therefore, the inner wall material 16 can be attached to the frame body 12 by simply suspending the inner wall material hook members 163 from the frame body 12. Therefore, workability in terms of attaching the inner wall material 16 to the frame body 12 can be improved.

The uppermost inner wall material hook member 163 is provided to the upper end of the inner wall material 16. Therefore, the inner wall material 16 is stably fixed at the upper end thereof. Since the upper end of the inner wall material 16 is stably fixed by way of the inner wall material hook members 163, the inner wall material side molding 17 is stably supported at the upper end of the inner wall material 16, and can be stably fixed between the inner wall material 16 and the ceiling material 13.

The outer wall material 18 includes, on the back side thereof, the outer wall material hook members 183 suspended from the frame body 12. Therefore, the outer wall material 18 can be attached to the frame body 12 by simply suspending the

outer wall material hook members 183 from the frame body 12. Therefore, workability in terms of attaching the outer wall material 18 to the frame body 12 can be improved.

The inner wall material positioning protrusion 111 and the positioning recess 164 are provided, which restrain the lower end of the inner wall material 16 from moving in a direction approaching the longitudinal frame 121 and in a direction separating from the longitudinal frame 121. As a result, when the inner wall material 16 is attached to the frame body 12, the lower end of the inner wall material 16 can be easily positioned.

Next, a bathroom unit 1A according to a second embodiment of the present invention is described. FIG. 8 is a side view illustrating the bathroom unit 1A according to the second embodiment of the present invention. Primary difference of the bathroom unit 1A according to the second embodiment from the bathroom unit 1 according to the first embodiment is an attachment structure of an inner wall material 16A. In describing the second embodiment, the same components as the first embodiment are assigned with the same reference numbers, and descriptions thereof are omitted or simplified herein.

The bathroom unit 1A of the second embodiment includes: the inner wall material 16A, at the lower end of which a catching plate 43 is provided; a connecting plate 41 for fixing the longitudinal frame 121 and the ceiling material 13, and detachably fixing the upper end of the inner wall material 16A; and a protruding plate 42 that is fixed to the lower end

of the longitudinal frame 121 and is caught by the catching plate 43.

The protruding plate 42 is provided to the lower end of the inner surface of the longitudinal frame 121. The protruding plate 42 is formed of a plate, and includes a first vertical plate portion 421, a bottom plate portion 422, and a second vertical plate portion 423. The first vertical plate portion 421 extends downwards from above the lower end of the longitudinal frame 121, along the inner surface of the longitudinal frame 121, to the lower end of the longitudinal frame 121. The bottom plate portion 422 extends from the lower end of the first vertical plate portion 421 for a predetermined length along the top surface of the floor material 11, in a direction separating from the longitudinal frame 121. The second vertical plate portion 423 extends upwards from the end of the bottom plate portion 422, the end being opposite to the longitudinal frame 121, for a predetermined length. The second vertical plate portion 423 is arranged so as to project from the floor material 11.

The protruding plate 42 is fixed to the longitudinal frame 121 by way of a screw member 445 at the first vertical plate portion 421.

The catching plate 43 is provided to the lower end of the back surface of the inner wall material 16. The catching plate 43 includes: an attachment portion 431 that is formed of a plate, and abuts on the back surface of the inner wall material 16, on the back surface of the lower end side of the

inner wall material 16; a parallel portion 433 that is arranged lower than the attachment portion 431, and extends in parallel with the inner wall material 16 so as to be spaced apart from the back surface of the inner wall material 16; and a connection portion 432 that connects the attachment portion 431 and the parallel portion 433.

A gap is provided between the parallel portion 433 and the inner wall material 16, and is open downwards such that the protruding plate 42 is caught by the catching plate 43. The protruding plate 42 is locked to the gap of the catching plate 43, whereby the position of the lower end of the inner wall material 16 is set out.

The catching plate 43 is fixed to the back surface of the inner wall material 16 by way of a screw member 446 at the attachment portion 431.

The connecting plate 41 is formed of a plate, and includes an upper horizontal plate portion 411, an intermediate vertical plate portion 412, an intermediate horizontal plate portion 413, and a lower vertical plate portion 414. The upper horizontal plate portion 411 is at the end side on the under surface of the ceiling material 13 in the horizontal direction, and horizontally extends from the position away from the longitudinal frame 121, along the under surface of the ceiling material 13, so as to approach the longitudinal frame 121, for a predetermined length. The intermediate vertical plate portion 412 extends downwards from the end of the longitudinal frame 121 side of the upper

horizontal plate portion 411, along the inner surface of the longitudinal frame 121, for a predetermined length. The intermediate horizontal plate portion 413 horizontally extends from the lower end of the intermediate horizontal plate portion 413 in a direction separating from the longitudinal frame 121, for a predetermined length. The lower vertical plate portion 414 extends downwards from the end of the intermediate horizontal plate portion 413, the end being opposite to the longitudinal frame 121, for a predetermined length.

The upper horizontal plate portion 411 of the connecting plate 41 is fixed by way of a screw member 441. The connecting plate 41 is fixed by way of screw members 442 and 443 at the intermediate vertical plate portion 412. The lower vertical plate portion 414 and the inner wall material 16A are detachably attached to each other by way of a screw member 444 for attachment and detachment, in a state where the upper end of the inner wall material 16A abuts on the lower vertical plate portion 414 of the connecting plate 41, after the protruding plate 42 is caught by the catching plate 43 provided to the inner wall material 16A.

According to the second embodiment as thus configured, the protruding plate 42 and the catching plate 43 function as the inner wall material restraining portions for restraining the lower end of the inner wall material 16 from moving in the direction approaching the longitudinal frame 121 and in the direction separating from the longitudinal frame 121.

Therefore, when the inner wall material 16A is attached to the frame body 12, the lower end of the inner wall material 16A can be easily positioned.

Next, a bathroom unit 1B according to a third embodiment of the present invention is described. FIG. 9 is a side view illustrating the bathroom unit 1B according to the third embodiment of the present invention. Difference of the bathroom unit 1B according to the third embodiment from the bathroom unit 1 according to the first embodiment is a structure of an inner wall material 16B. In describing the third embodiment, the same components as the first embodiment are assigned with the same reference numbers, and descriptions thereof are omitted or simplified herein.

The inner wall material 16B of the third embodiment further includes a pipe arrangement passage member 50, in addition to the tile material 161 and the backing material 162 of the inner wall material 16 of the first embodiment. The pipe arrangement passage member 50 is attached to the back surface of the backing material 162 of the inner wall material 16 of the first embodiment. The inner wall material hook members 163 are provided to the back surface of the pipe arrangement passage member 50.

The pipe arrangement passage member 50 is formed into a cylindrical shape extending in the vertical direction. A pipe arrangement 60 can be arranged inside of the pipe arrangement passage member 50. In the present embodiment, the pipe arrangement 60 penetrates through the tile material 161 and

the backing material 162 in the horizontal direction, extends to the pipe arrangement passage member 50, and bends and extends downwards inside of the pipe arrangement passage member 50.

According to the third embodiment as thus configured, a space for providing the pipe arrangement 60 of the bathroom unit 1 can be provided inside of the inner wall material 16B. Therefore, the space can be more efficiently utilized than separately providing a space for providing the pipe arrangement 60.

Next, a bathroom unit 1C according to a fourth embodiment of the present invention is described. FIG. 10 is a side view illustrating the bathroom unit 1C according to the fourth embodiment of the present invention. Difference of the bathroom unit 1C according to the fourth embodiment from the bathroom unit 1 according to the first embodiment is further including a lifting member 70. In describing the fourth embodiment, the same components as the first embodiment are assigned with the same reference numbers, and descriptions thereof are omitted or simplified herein.

The lifting member 70 is used when lifting and carrying a completed product of the bathroom unit 1 or the frame body 12 by way of a lifting crane, etc. The lifting member 70 is formed into the shape of a rod penetrating through the inside of the longitudinal frame 121 in the vertical direction. A catching portion 701 is formed at the upper end of the lifting member 70. The catching portion 701 is formed into the shape

of a ring so as to be suspended from a lifting crane, etc. When the lifting member 70 is attached to the frame body 12, the upper end side and the lower end side of the lifting member 70 are fixed to the longitudinal frame 121 by way of an upper nut 702 and a lower nut 703, respectively.

According to the fourth embodiment as thus configured, the lifting member 70 is attached to the bathroom unit 1, whereby a hook (not illustrated) of a lifting crane, etc. can catch and suspend the catching portion 701, and the bathroom unit 1 can be lifted. As a result, the bathroom unit 1 can be easily transported.

The preferred embodiments of the bathroom unit of the present invention have been described above; however, the present invention is not limited to the embodiments described above, and can be modified as appropriate.

For example, the first embodiment is configured such that the inner wall material 16 or the outer wall material 18 is suspended from the plurality of bar members 15; however, the present invention is not limited thereto. The present invention may be configured such that openings are provided to the longitudinal frame 121, and the inner wall material 16 or the outer wall material 18 is suspended from the openings of the longitudinal frame 121.

Further, the first embodiment is configured such that the inner wall material 16 or the outer wall material 18 is suspended from the longitudinal frame 121; however, the present invention is not limited to thereto. For example, the

present invention may be configured such that the inner wall material 16 or the outer wall material 18 fits the longitudinal frame 121.

Moreover, in the above-described embodiments, the inner wall material positioning protrusion 111 and the outer wall material positioning protrusion 112 are configured as protruding protrusions; however, the present invention is not limited thereto. A protrusion may be replaced with a feature similar to a protruding groove, in which a protruding portion extends in the horizontal direction.

Further, the first embodiment is configured such that the inner wall material 16 or the outer wall material 18 is suspended from the plurality of bar members 15 by way of the inner wall material hook members 163 or the outer wall material hook members 183; however, the present invention is not limited thereto. The inner wall material 16 or the outer wall material 18 may be directly attached to the frame body 12.

EXPLANATION OF REFERENCE NUMERALS

1, 1A, 1B, 1C bathroom unit

11 floor material

12 frame body

13 ceiling material

16, 16A, 16B, 16C inner wall material

17 inner wall material side molding (inner wall material gap filling member)

18 outer wall material

42 protruding plate (inner wall material restraining portion)

43 catching plate (inner wall material restraining portion)

111 inner wall material positioning protrusion (inner wall material restraining portion)

121 longitudinal frame (frame member)

163 inner wall material hook member (inner wall material suspension member)

164 positioning recess (inner wall material restraining portion)

183 outer wall material hook member (outer wall material suspension member)

CLAIMS

1. A bathroom unit comprising:

a floor material;

a frame body including a plurality of frame members standing on a top surface side on a periphery of the floor material;

a ceiling material attached to the frame body; and

an inner wall material attached to an inside of the frame body, between the floor material and the ceiling material, the inner wall material being attachable and detachable in relation to the frame body, wherein

an upper end of the inner wall material is arranged so as to be spaced apart from the ceiling material.

2. The bathroom unit according to claim 1, further comprising an inner wall material gap filling member arranged so as to fill a gap between the inner wall material and the ceiling material.

3. The bathroom unit according to claim 1 or 2, wherein

the inner wall material includes, on a back side thereof, an inner wall material suspension member suspended from the frame body.

4. The bathroom unit according to claim 3, wherein

the inner wall material suspension member is provided to the upper end of the inner wall material.

5. The bathroom unit according to any one of claims 1 to 4, further comprising an outer wall material that is attached to an outside of the frame body, and is attachable and detachable in relation to the frame body.

6. The bathroom unit according to any one of claims 1 to 5, further comprising an inner wall material restraining portion that restrains a lower end of the inner wall material from moving in a direction approaching the frame member and in a direction separating from the frame member.

7. A construction method for a bathroom unit including: a floor material; a frame body including a plurality of frame members standing on a top surface side on a periphery of the floor material; a ceiling material attached to the frame body; and an inner wall material attached to an inside of the frame body, between the floor material and the ceiling material, the inner wall material being attachable and detachable in relation to the frame body,

the method comprising the steps of:

attaching the inner wall material to the frame body, such that a predetermined gap is formed between the ceiling material and the inner wall material; and

attaching an inner wall material gap filling member between the inner wall material and the ceiling material, so as to fill the gap between the inner wall material and the ceiling material.